PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : B65H 35/00, 18/28 — A1

(11) International Publication Number: WO 98/14393

(43) International Publication Date: 9 April 1998 (09.04.98)

(21) International Application Number: PCT/US96/15939

(22) International Filing Date: 4 October 1996 (04.10.96)

(71) Applicant: MINNESOTA MINING AND MANUFACTURING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133–3427 (US).

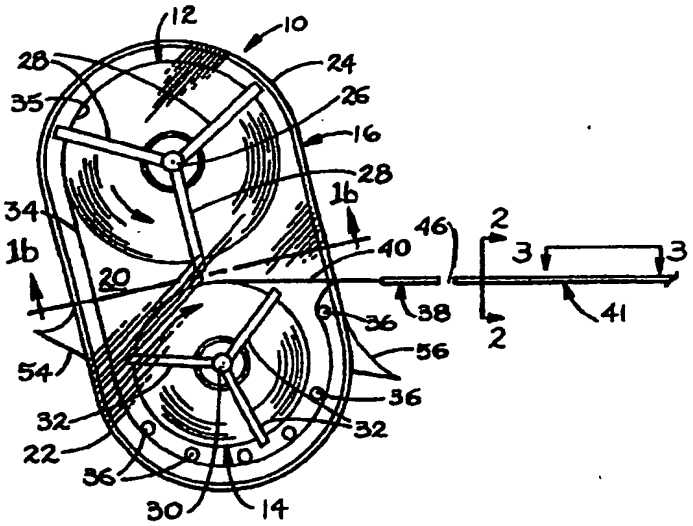
(72) Inventor: RIORDAN, James, F.; P.O. Box 33427, Saint Paul, MN 55133–3427 (US).

(74) Agents: SCHULTZ, Leland, D. et al.; Minnesota Mining and Manufacturing Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133–3427 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: TAPE ROLL STRUCTURE FOR USE IN MAKING MARGINAL EDGE TABS FOR SHEETS



(57) Abstract

A tape roll structure which includes a tape having adhesive on one face, and the tape can be pulled off a tape roll and cut into segments of varying lengths. The tape is provided with a paper tape or coating on one or both sides for receiving written indicia, and which becomes part of a tape segment. Thus, once a tape segment has been attached by adhesive to a marginal edge of a sheet, written indicia can be written on the paper tape or coating so that a tab is immediately formed on a sheet. In preferred embodiment, a pair of tape rolls (12, 14) are mounted in a shell (16) and one of the tape rolls (12) carries a paper tape (34) and the other tape roll (14) carries adhesive tape (40). When the two tapes are pulled from their rolls, the paper tape (34) moves into bonded engagement with one-half of the adhesive tape (40) of the other roll. Then the tapes are cut into a segment and bonded to the sheet to which a tab is to be mounted.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

TAPE ROLL STRUCTURE FOR USE IN MAKING MARGINAL EDGE TABS FOR SHEETS

BACKGROUND OF THE INVENTION

This invention relates to improvements in flexible adhesive tape for attachment to surfaces of sheets and other objects and, more particularly, to tape roll structure for use in making tabs on an edge margin of a sheet.

Conventional tabs for edge margins of sheets are typically made of plastic which is transparent, and each tab has a pocket for receiving a paper strip on which indicia can be written before the paper strip is inserted into the pocket. The conventional tabs are costly, relatively rigid, limited in length, and are bonded in some suitable manner to an edge margin of a sheet to couple the paper strip to the sheet.

It is a cumbersome and laborious task to couple the conventional plastic tab holder to a sheet. It is desirable that the use of a tab be made easier and less expensive and that the length of the tab be variable; thus, improvements are needed to simplify not only the making of tabs, but also the placement of tabs on the edge margins of sheets. The present invention provides such improvements.

SUMMARY OF THE INVENTION

The present invention provides a tape roll structure which includes a transparent or a translucent tape having adhesive on one face thereof, and the tape can be pulled off a tape roll and cut into a segment in a normal fashion. The tape of the present invention can be provided with means for receiving written indicia, and such means is cut when the tape is cut. The indicia receiving means thus becomes part of the tape segment. Thus, once a tape segment has been attached by adhesive to a marginal edge of a sheet, the indicia can be written or otherwise marked on the receiving means so that a tab is immediately formed on a sheet. other tabs can be coupled in a like manner to other sheets. The present invention thus provides means for forming tabs for sheets in a manner to avoid the time-consuming and costly drawbacks of conventional tab-forming structures and allows indicia of variable lengths.

In a preferred embodiment of the invention, a pair of tape rolls are mounted in a shell, and one of the tape rolls is made up of a paper tape while the other tape roll is made up of an adhesive tape. When the two tapes are pulled together away from their rolls, the paper tape moves off its roll and into bonded engagement with a part of, e.g., one-half of, the adhesive tape of the other roll. Then the tapes, when bonded together, are cut into a short segment and the other part of the cut segment of the adhesive tape can be immediately bonded to the sheet to which a tab is to be mounted. The paper tape of each segment is written on to receive the indicia which designates or identifies the sheet on which the tab is mounted.

Another embodiment of the present invention is a single roll of tape which can be provided with a coating on one or both sides of part of or one-half of the tape, the coating being capable of receiving written indicia. The other half of the tape is provided with adhesive for bonding the tape to a sheet to receive a tab.

In another embodiment of the single tape roll concept, the tape roll is comprised of two tapes wound together about the same central axis, one tape being an adhesive tape and the other tape being a paper tape with the paper tape being the tape to receive the written indicia. The paper tape is bonded directly to part of or one-half of the adhesive tape, and the adhesive tape is secured to the backside of the sheet to which a tab is to be mounted. The tab can be thus formed in a minimum of time and with a minimum of effort from the tape roll structure.

The present invention provides an adhesivebacked tape which can be provided with a coating in white or other color and which will accept and retain ink from a pen or typewriter, or lead from a pencil, and which may be pulled out from a tape roll structure and cut into segments of any desired length in the same manner as conventional Scotch-type tape is cut. Each tape segment can easily and quickly be secured to the rear side of a sheet of paper or other material to form a permanent or removable tab for easy identification and location of a sheet when placed in hanging files or manila folders or when using the sheet as a binder divider. The tabs may contain writing or be used as a color coded system.

The present invention provides tape structure which may be dispensed from a prerolled form in which the tab feature has been incorporated into the roll at the

factory, directly from a standard 3/4 inch Model C15 Scotch tape dispenser or equivalent. The present invention may also be dispensed from a shell-like cartridge which drops into the well or groove of a conventional tape dispenser base, and which operates to laminate standard adhesive tape to paper strips at the point of cutoff of the tape into segments.

The present invention contemplates that a single tape roll can be manufactured with a paper tape incorporated with the adhesive tape of the tape roll or the adhesive tape can be provided with a coating on one-half of the width of the adhesive tape on one or both sides. The coating can be with a white or colored. The advantage in providing the coating is the ease of production and the symmetry of the flatness across the width of the tape, allowing the tape roll to be uniform in thickness across the width of the tape and allowing more tabs to be available from a single tape roll. A minor disadvantage is that the tabs would lack the stiffness inherent in the design which incorporates a paper tape.

The tape segments can be used to form marginal edge tabs, and the segments can be quickly placed on several or all documents or sheets of paper in one file folder. Thus, individual letters or documents with the tape segments on them can be quickly identified without searching through the files.

The tabs formed by the present invention are of substantially the same thickness as the sheet on which the tabs are mounted. The tabs lay flat in a copy machine and roll easily into a typewriter. The tabs allow copies to be made quickly and easily. Copies are distortion-free since the original sheets lay flat on the copier glass. This is not possible with standard plastic or glue-on tabs. Since the tab of the present invention is taped on a sheet from the reverse side of the sheet, the tab does not show up on the copies made from an original with a tab. The tabs of the present invention can be placed on the side or top of a sheet and then put into a typewriter for text to be typed on, providing a professionally finished product in applications where hand-written messages would not be unacceptable. Messages can also be written or typed on both sides of the tab.

Tabs can be available at all times from the tape roll structure on a desk top, and the tabs can be quickly and easily cut to size, such as cutting the size of a piece of conventional adhesive tape.

Other objects of this invention will become apparent as the following specification progresses, reference being had to the accompanying drawings for illustrations of several embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side elevational view of a tape roll structure forming one embodiment of the present invention, and showing two coupled tapes pulled outwardly from the structure;

Fig. 1A is a view similar to Fig. 1 but showing the tape roll structure in the well of a base;

Fig. 1B is a cross-sectional view taken along line 1B-1B of Fig. 1;

Fig. 2 is an enlarged cross-sectional view taken along line 2-2 of Fig. 1;

Fig. 3 is a top plan view of a tape segment looking in the direction of line 3-3 of Fig. 1;

Fig. 4 is a fragmentary, perspective view of a sheet with the tape segment of Fig. 3 coupled to the rear face of the sheet;

Fig. 5 is a view similar to Fig. 4 but showing the tape segment showing the front face of the means thereon for receiving written indicia;

Fig. 6 is a side elevational view of a tape roll forming a second embodiment of the present invention;

Fig. 6A is a cross-sectional view taken along the line 6A-6A of Fig. 6; and

Fig. 6B is a view similar to Fig. 6A but showing a tape segment formed from another embodiment of the tape roll structure of the present invention.

DESCRIPTION OF THE SPECIFIC EMBODIMENT

A first embodiment of the tape roll structure of the present invention is denoted by the numeral 10 and includes a rotatable tape roll 12 and a rotatable tape roll 14 spaced from tape roll 12. Tape roll 14 is rotatable about an axis parallel with

the axis of rotation of tape roll 12. The two tape rolls 12 and 14 are remounted in a shell 16 (Figs. 1 and 1B), the shell having opposed sidewalls 18 and 20 (Fig. 1B) and a pair of opposed end walls 22 and 24. The shell is made so that walls 18 and 20 can be separated to allow replacement of either or both of tape rolls 12 and 14 when a tape supply on the roll or rolls is depleted.

Tape roll 12 has a shaft 26 mounted by radial webs 28 on sidewalls 18 and 20 so that the tape roll 12 can rotate about the axis of shaft 26. Similarly, a shaft 30 mounts tape roll 14 on radial webs 32 coupled to shell 16 so that tape roll 14 can rotate about an axis parallel with the axis of shaft 26.

While tape rolls 12 and 14 can rotate in either direction, tape roll 12 is designed to rotate in a counterclockwise sense when viewing Fig. 1 and tape roll 14 is designed to rotate in a clockwise sense when viewing Fig. 1.

Tape roll 12 is formed from a number of convolutions or windings of paper tape 34 on an outer peripheral web 35 surrounding shaft 26. Tape 34 extends away from tape roll 12 and extends downwardly about spaced pins 36 in shell 16 which serve as tape guides to direct the paper tape 34 to a location denoted by the numeral 38 where the tape 34 comes in contact with and merges with a tape 40 from tape roll 14. Tape 40 is provided on the lower face thereof with a layer of adhesive so that the paper tape 34 will bond to only a part of the width of tape 40. Tape 38 is typically one-half the width of the tape 40 so that tape 38 is applied to tape 40 along a side portion having one-half of the width of tape 40 when the two tapes 38 and 40 meet near location 38.

Figs. 2 and 3 show a tape segment 41 formed when paper tape 34 is bonded to the lower face of adhesive tape 40 with the width of paper tape 34 being substantially equal to one-half the maximum width of tape 40, the lower face 40a which is not covered by paper tape 34 being still provided with an adhesive so as to bond to the rear face 42 of a sheet 44, such as a plastic or paper sheet. The tape segment shown in Fig. 4 will be bonded to sheet 44 in a manner to expose the upper surface of tape segment 41 which is shown in Fig. 5 as being in a position to receive written indicia, such as letters, numbers, words and the like. Tape segment 41,

therefore becomes a tab automatically when the tape segment is cut from tapes 34 and 40, such as at the breakpoint 46 (Fig. 1) by a cutter blade 60 carried by base 50.

Tape roll structure 10 is adapted to be placed in a conventional base 50 (Fig. 1A) having a groove or well 52 for receiving the lower portion of tape roll structure 10 as shown in Fig. 1A. A pair of projections 54 and 56 are provided on shell 16, and these projections rest on the upper surface 58 of base 50 so as to support the shell 16 and thereby tape rolls 12 and 14 in the manner shown in Fig. 1A. Serrated cutting blade 60 is provided at the outer end of the base for cutting the two tapes 34 and 40 at breakpoint 46 after the tapes have been manually pulled past and onto a flat, upper, horizontal surface 62 on the base. Shell 16 can be lifted out of well 52 for replacement of tape rolls 12 and 14 at any time.

The tapes 34 and 40 are flexible and can easily be cut. Tape 40 can be transparent or translucent and have adhesive on the entire lower face thereof.

Another embodiment of the tape roll structure of the present invention is broadly denoted by the numeral 70 and comprises a single roll of tape which is mounted for rotation by web structure 71 in any suitable manner on a support, the web being used to mount a shaft 72 on which a center disk 73 is rotatably mounted. The tape structure in the form of a plastic adhesive tape 74 is wound on disk 73, and tape 74 has a coating of white or colored paint, the coating being denoted (Fig. 6A) by the numeral 75, on the lower face of the tape adjacent to a layer of adhesive on the lower face 74a of tape 74. A second coating 76 of paint can be on the upper face of tape 74, if desired, directly above coating 75. The coating 75, when the tape is to be used, can be written on, such as by a pen or pencil, and the tape segment, of any length, formed when the tape is cut in a suitable manner, such as by a scissors or by a blade, such as blade 60 of the embodiment 10, can be used to form an end tab for a sheet such as sheet 44 (Figs. 4 and 5).

Another embodiment of the tape for the tape roll structure 70 includes an adhesive tape 80 with a paper tape 82 forming the means for receiving written indicia. Paper tape 82 is bonded to the lower surface of tape 80 so that the tape roll structure 70 includes adhesive tape 80 with paper tape 82 wound thereon to form a finished tape roll structure whose tape to be dispensed is initially wound as two

tapes on two tape rolls. The two tapes come off the roll attached together and remain coupled together when the tapes are cut into segments to form tabs to be bonded to the edge margins of sheets.

WHAT IS CLAIMED IS:

1. A tape assembly comprising:

a roll of flexible tape capable of being cut into segments, said tape having a pair of side-by-side, longitudinally-extending portions, said portions being integral with each other, one of said portions having means thereon and initially in said roll for receiving written indicia, the other portion having a layer of adhesive thereon, whereby tape can be pulled off the roll and cut to form a tape segment, the other portion of the tape segment being capable of being bonded to a sheet at one edge margin thereof as one portion of the tape segment projects laterally from said edge margin to form with said receiving means a tab capable of being provided with written indicia thereon.

2. A tape assembly as set forth in Claim 1, wherein said receiving means is on the same face of the tape as said adhesive layer.

3. A tape assembly as set forth in Claim 1, wherein said receiving means includes a tape of paper.

4. A tape assembly as set forth in Claim 3, wherein said paper tape is adhesively bended to the one portion of the tape.

5. A tape assembly as set forth in Claim 1 wherein said receiving means includes a coating.

6. A tape assembly as set forth in Claim 5, wherein said coating is a paint coating.

7. A tape assembly as set forth in Claim 5, wherein said one portion has said coating on both faces of the tape.

8. A tape assembly as set forth in Claim 1, wherein the tape is transparent.

9. A tape assembly as set forth in Claim 1, wherein the tape is translucent.

10. A tape assembly as set forth in Claim 1, wherein the portions of the tape are of substantially equal width.

11. A tape assembly comprising: tape roll means for dispensing a flexible tape structure capable of being cut into segments, said tape structure having a pair of side-by-side, longitudinally-extending surface portions, one of the surface portions having means thereon and initially in said roll means for receiving written thereon, the other surface portion having adhesive thereon, said tape structure being capable of being pulled off said roll means and cut to form a tape segment, whereby the other surface portion of the tape segment can be bonded to a sheet at one edge margin thereof as said one surface portion of the paper segment projects laterally from said sheet margin to form with said receiving means a tab capable of being provided with written indicia thereon.

12. A tape assembly as set forth in Claim 11, wherein the tape roll means includes a first tape roll for dispensing a first tape and a second tape roll for dispensing a second tape, one of said tapes having said surface portions thereon and the other tape defining said receiving means.

13. A tape assembly as set forth in Claim 12, wherein is provided means for urging the first and second tapes together as the tapes are pulled off said first and second tape rolls.

14. A tape assembly as set forth in Claim 13, wherein said urging includes means defining a fixed, generally horizontal, upper surface.

15. A tape assembly as set forth in Claim 12, wherein is included means coupled with the tape rolls for mounting the tape rolls for rotation relative to a predetermined reference.

16. A tape assembly as set forth in Claim 15, wherein said mounting means includes a shell, and shaft means for rotatably mounting the tape rolls on the shell.

17. A tape assembly as set forth in Claim 16, wherein said shell has a pair of spaced sidewalls, said tape rolls being between the walls, and web means coupled to the walls for connecting the shaft means to the walls.

18. A tape assembly as set forth in Claim 16, wherein said shaft means includes a shaft each tape roll, respectively, the shafts being generally horizontal.

19. A tape assembly as set forth in Claim 16, wherein is included a holder for the shell.

20. A tape assembly as set forth in Claim 19, wherein the holder includes a base having a well for receiving the lower part of the shell" and projection means on the shell for seating the shell in the well of the base.

21. A tape assembly as set forth in claim 20, wherein said base has a horizontal upper surface for moving the first and second tapes into engagement with each other as the tapes are pulled off respective tape rolls.

22. A tape assembly as set forth in Claim 12, wherein one of the tape rolls is above the other tape roll, said first tape being a paper tape wound on the first tape roll, with the second tape being an adhesive tape wound on the second

tape roll, and guide means for guiding the first and second tapes into engagement with each other as the tapes are pulled off the rolls.

23. A tape assembly as set forth in Claim 11, wherein said tape roll means includes a single tape roll having a first tape provided with said receiving means thereon.

24. A tape assembly as set forth in Claim 23, wherein said receiving means includes a paper tape.

25. A tape assembly as set forth in Claim 23, wherein said receiving means includes a coating capable of being written on.

26. A roll of sheet material which is elongated longitudinally, wherein the sheet material has first and second major opposed sheet surfaces and first and second opposed side edges, the roll of sheet material comprising:

a repositionable pressure sensitive adhesive aligned longitudinally on only a portion of the first sheet surface of the sheet material, adjacent the first side edge thereof.

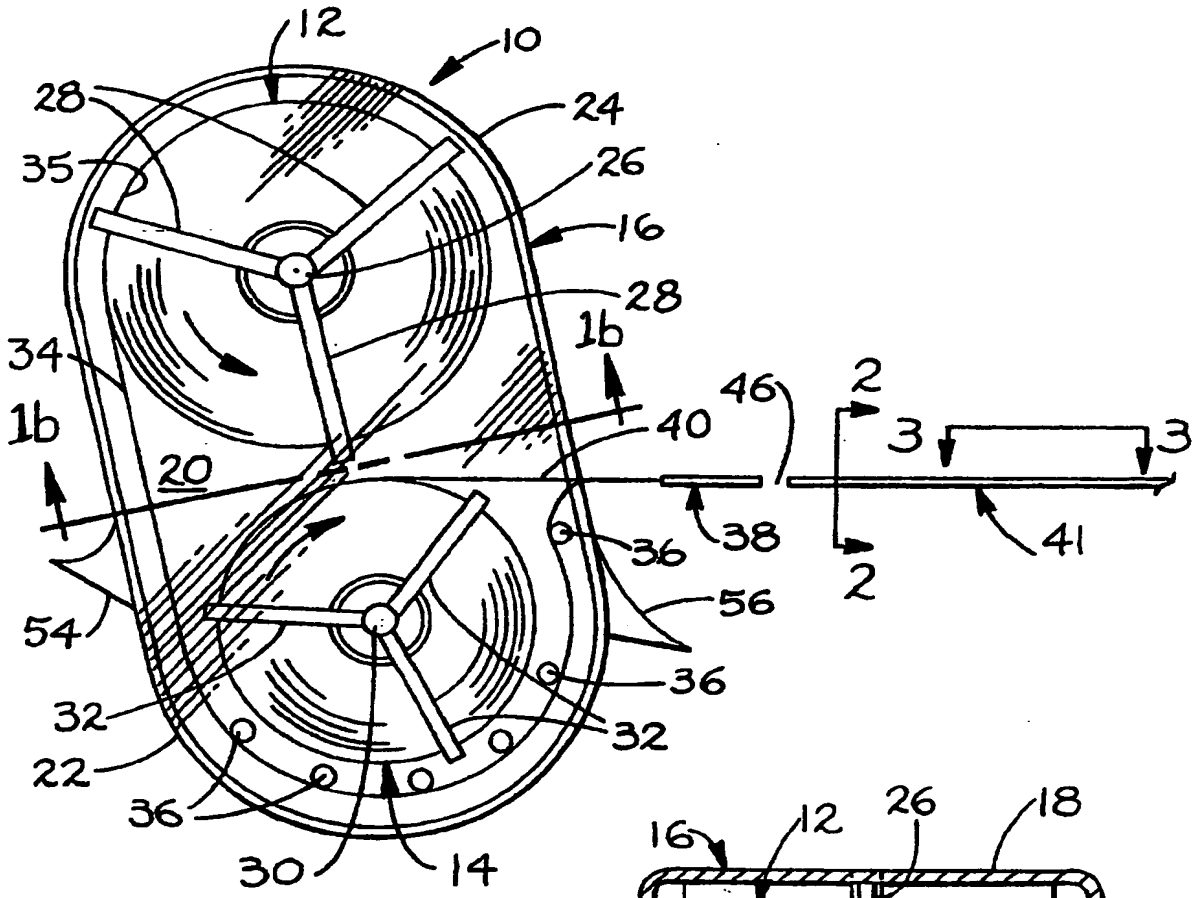


FIG. 1

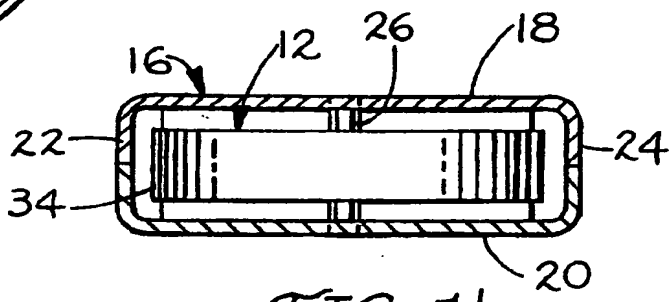


FIG. 1b

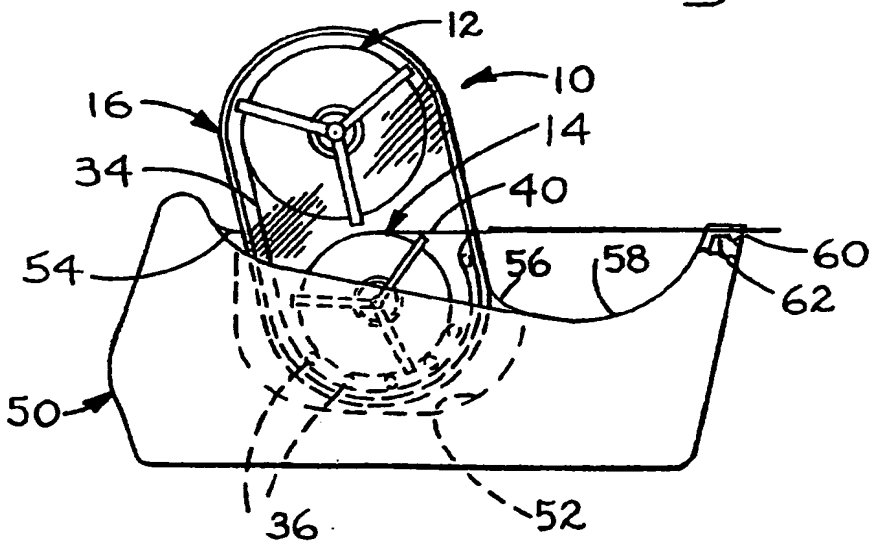


FIG. 1a

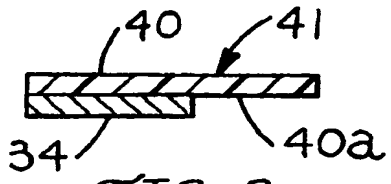


FIG. 2

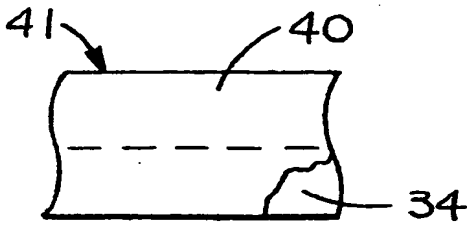


FIG. 3

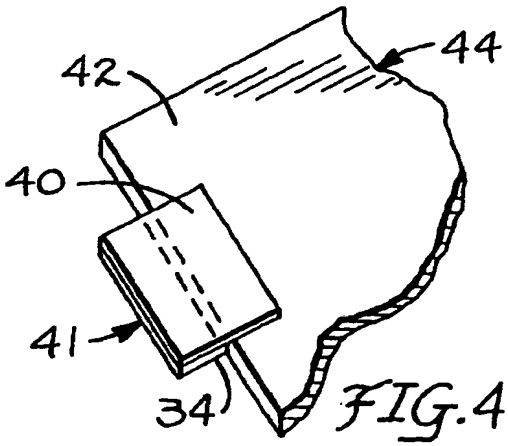


FIG. 4

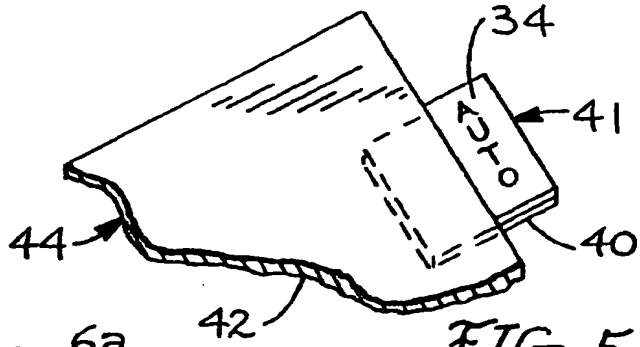


FIG. 5

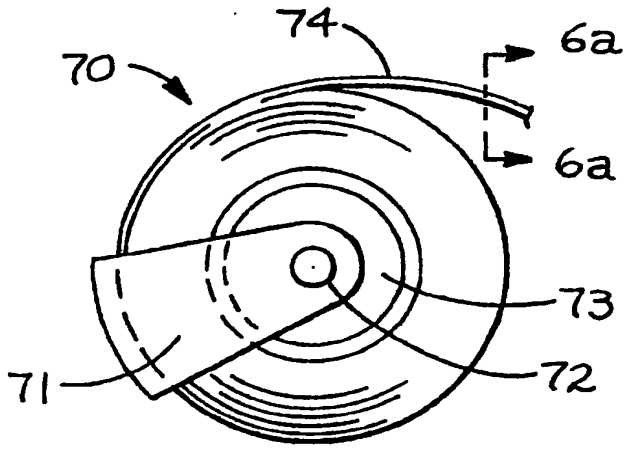


FIG. 6

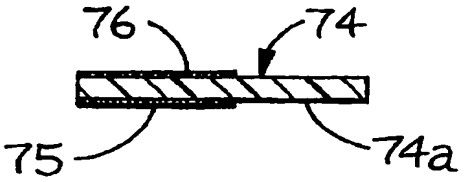


FIG. 6a

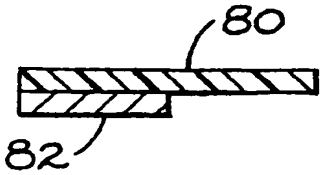


FIG. 6b

INTERNATIONAL SEARCH REPORT

Inten ual Application No
PCT/US 96/15939

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65H35/00 B65H18/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B65H B42F G09F C09J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 28 00 939 A (KORES HOLDING ZUG AG) 3 August 1978 see the whole document ---	1-4,8,10
X	US 3 747 242 A (E. HEIMANN) 24 July 1973 see column 1, line 1 - column 3, line 61; figures 1-6 ---	1,2
X Y	GB 2 013 613 A (COSCO INDUSTRIES INC.) 15 August 1979 see the whole document ---	1-3,9, 11,23,24 26
Y	US 4 680 210 A (D. E. CORCORAN) 14 July 1987 see the whole document --- -/--	26

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 June 1997	17. 06. 97

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl, Fax (+ 31-70) 340-3016	Raven, P

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Int nal Application No
PCT/US 96/15939

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 1 132 110 A (MINNESOTA DE FRANCE) 5 March 1957 see the whole document	11-13,15
A	WO 93 22389 A (J. OLSEN) 11 November 1993 see page 1 - page 13; figures	1,11,26
A	WO 80 02391 A (C. STEPHENS) 13 November 1980 see page 6, line 30 - page 7, line 33; figures 2,4-8	1,11
A	US 3 193 433 A (H. B. TILLOTSON) 6 July 1965 see the whole document	11-19
A	GB 757 587 A (R. J. GOETZ) 19 September 1956 see the whole document	11-16,22
A	DE 89 05 144 U (O. DRÜCKER) 15 June 1989 see the whole document	11-16,22

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter nal Application No
PCT/US 96/15939

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 2800939 A	03-08-78	AT 350697 A	11-06-79
		FR 2378840 A	25-08-78
US 3747242 A	24-07-73	CH 548291 A	30-04-74
		CH 556243 A	29-11-74
		DE 2000798 A	15-07-71
		FR 2075353 A	08-10-71
		NL 7100193 A	13-07-71
		US 3924744 A	09-12-75
GB 2013613 A	15-08-79	DE 2901374 A	19-07-79
		FR 2414763 A	10-08-79
		JP 54113300 A	04-09-79
		NL 7900190 A	18-07-79
		SE 7900331 A	17-07-79
US 4680210 A	14-07-87	AU 7263987 A	19-11-87
		CA 1273789 A	11-09-90
		EP 0246022 A	19-11-87
		JP 62268691 A	21-11-87
FR 1132110 A	05-03-57	NONE	
WO 9322389 A	11-11-93	US 5370916 A	06-12-94
		AU 4230393 A	29-11-93
WO 8002391 A	13-11-80	EP 0033727 A	19-08-81
US 3193433 A	06-07-65	NONE	
GB 757587 A		NONE	
DE 8905144 U	15-06-89	NONE	